



Dart Aerospace Ltd.
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D407-667-105TRN
Job Sheet 192346



Part No: D407-667-105TRN

Job Qty: 1 ea

Part Name: Crosstube Turning Detail



Part Weight: 0 lbs

Status: New

Priority: Medium

Job Created: 3/21/19

Job Tracking No:

Due Date: 4/18/19

Created By: Marie Lajeunesse

Type: Stock

Description:

Note: DWG D407-667-145 REV.D IPP Rev:a 08.02.28 new issue EC IPP Rev B 08.04.02 Removed polish EC
verified by: DD

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup Hrs	Run Hrs	Workcenter / Supplier	Lead Time	
90	Start up Operation	1 Ea		4/18/19	0.00	0.00	Start Up Crosstubes-2		
100	Mori Seiki	1 pcs		4/18/19	2.21	1.25	Mori Seiki TL-40		
110	QC	1 pcs		4/18/19	0.00	0.00	QC2-2		
120	Mori Seiki	1 pcs		4/18/19	0.00	1.12	Mori Seiki TL-40		
130	QC	1 pcs		4/18/19	0.00	0.00	QC2-2		
140	QC	1 pcs		4/18/19	0.00	0.00	QC8		
145	Crosstubes	1 pcs		4/18/19	0.00	0.36	Crosstubes-2		
150	HandFXtube	1 pcs		4/18/19	0.00	0.40	Crosstubes-3		
160	QC	1 pcs		4/18/19	0.00	0.00	QC7-3		
170	Packaging	1 pcs		4/18/19	0.00	0.00	Packaging3-2		
180	QC21-SA	1 Ea		4/18/19	0.00	0.00	QC21		

Part Op 100 - 1- Fill tube with sand & install plugs 407-105 on both ends as per Folio FA249 2- Turn both side of tube 3- Turn first Descriptions: taper section on both side as per folio FA249

120 - 1- Turn second taper on both side 4- Scribe part # and batch # using vibrating stylus on the cuff as per Dwg D407-667-145 5- Ultra sound the crosstube as per FAI. "wall thickness mesurment" at given location.

145 - GRIND ONLY TRANSITION LINES SMOOTH LONGITUDE WAY.

150 - 1- handfinish X-TUBE INSIDE AND OUT

170 - LOCATION : LG014

Job BOM

Part / Item	Component Name	Quantity	Operation	Container
D6010-115	Crosstube Material	1 pcs (1 ea)	90-Start up Operation	E123975

Job Allocations

Operation	Component Part	Required	Inventory	Allocated
90-Start up Operation	D6010-115	1	114	0

Part Specifications

Specifications could not be found.

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DART AEROSPACE LTD			Work Order: 194427
Description: Crosstube Assembly	DAS 35	Part Number:	D407-667-145
Inspection Dwg: D407-667-145 Rev: ED		9-89	Page 1 of 2

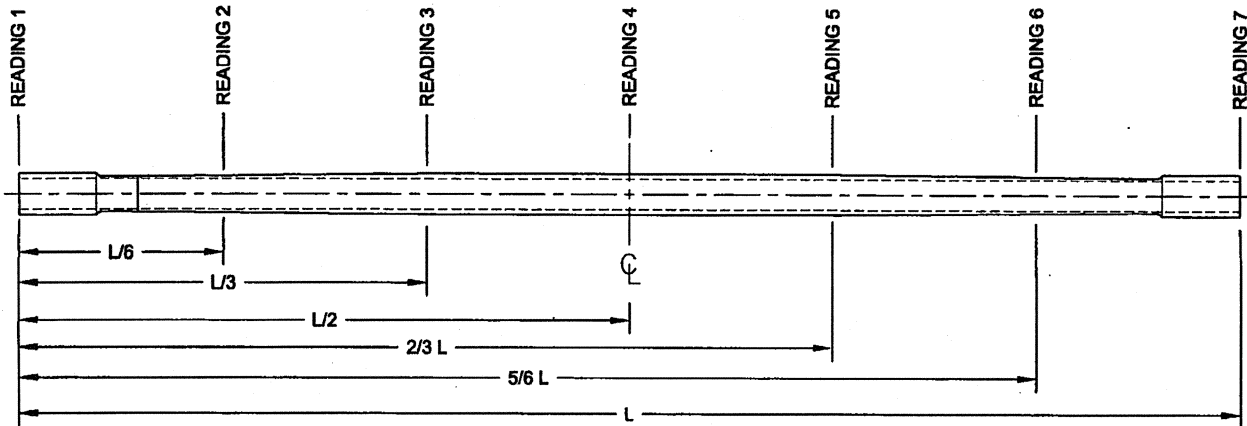
FIRST ARTICLE INSPECTION CHECKLIST

	Inspection Sheet Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
SIDE A	2.240	+0.005/-0.000	2.245	✓		CNC-04	
	1.865	+0.005/-0.000	1.870	✓		CNC-08	
	1.878	+0.005/-0.000	1.883	✓		"	
	1.970	+0.005/-0.000	1.975	✓		"	
	2.030	+0.005/-0.000	2.030	✓		CNC-04	
	2.165	+0.005/-0.000	2.170	✓		"	
	0.125	+/-0.010	.126	✓		CNC-08	
	R0.063	+/-0.010	.063	✓		RG	
	R0.500	+/-0.010	.500	✓		"	
	R0.063	+/-0.010	.063	✓		"	
	4.438	+/-0.030	4.437	✓		CNC-08	
SIDE B	2.240	+0.005/-0.000	2.243	✓		CNC-04	
	1.865	+0.005/-0.000	1.870	✓		CNC-08	
	1.878	+0.005/-0.000	1.883	✓		"	
	1.970	+0.005/-0.000	1.975	✓		"	
	2.030	+0.005/-0.000	2.035	✓		CNC-04	
	2.165	+0.005/-0.000	2.170	✓		"	
	0.125	+/-0.010	.126	✓		CNC-08	
	R0.063	+/-0.010	.063	✓		RG	
	R0.500	+/-0.010	.500	✓		"	
	R0.063	+/-0.010	.063	✓		"	
	4.438	+/-0.030	4.436	✓		CNC-08	
	113.20	+/-0.020	113.220	✓		Tape	

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DART AEROSPACE LTD		Work Order: 194427
Description: Crosstube Assembly	DAS 35 9-89	Part Number: D407-667-145
Inspection Dwg: D407-667-145 Rev: 01		Page 2 of 2

WALL THICKNESS MEASUREMENT



Location	WALL THICKNESS MEASUREMENT (IN)				Deviation Δw (max-min)	TOLERANCE
	w1	w2	w3	w4		
READING 1 L= 0"	.326	.319	.323	.329	.010	0.042"
READING 2 L= 18.867	.181	.182	.185	.185	.004	
READING 3 L= 37.734	.279	.272	.276	.283	.011	
READING 4 L= 56.700	.324	.326	.326	.324	.002	
READING 5 L= 75.467	.272	.267	.275	.282	.015	
READING 6 L= 94.333	.179	.173	.177	.185	.012	
READING 7 L= 113.20	.325	.313	.313	.327	.014	

Calibration Result

Actual Block Thickness: 100-500

Sitiescan 250 Measured Thickness: 100-500

DAS 66 9-89		Audited by: <i>SP</i> / <i>GP</i>		Preliminary Approval:	
Date: 2019-05-07		Date: 19/05/13		Date:	

Rev	Date	Change	Revised by	Approved
A	04.04.21	New Issue (P/O D407-667-105)	KJ/RF	
B	06.03.09	Dwg Rev updated	KJ/JLM	
C	09.06.11	Dwg Rev updated	KJ	
D	11.06.21	Tolerance revised for 4.438 dimension	KJ	
E	12.06.04	Wall thickness form added	KJ	

Item	Qty	Part Number	Description
1	X	D407-667-145	CROSSLUBE ASSEMBLY (407 HIGH FWD)
2	1	D6010-115	CROSSLUBE
3	2	D2873-043	NUT PLATE
4	2	D2873-045	NUT PLATE
5	2	D2891-1	SUPPORT
6	4	D3595-063-395	RUBBER CUSHION
7	4	MS21920-20	CLAMP (OR MS21920-21)
8	14	MS20601AD4W10	RIVET (OR NAS9302B-4-10)
9	N/R	PROSEAL 890 B-2	SEALANT, AMS-S-8802 CLASS B-2
10	2	AN742D36	CLAMP
11	2	MS9165-05	ANGLE BRACKET
12	2	MS21042L3	NUT (OR MS21042-3)
13	2	MS27039-1-08	SCREW
14	4	NAS1149C0332R	WASHER (OR AN960C10L)

GENERAL NOTES:

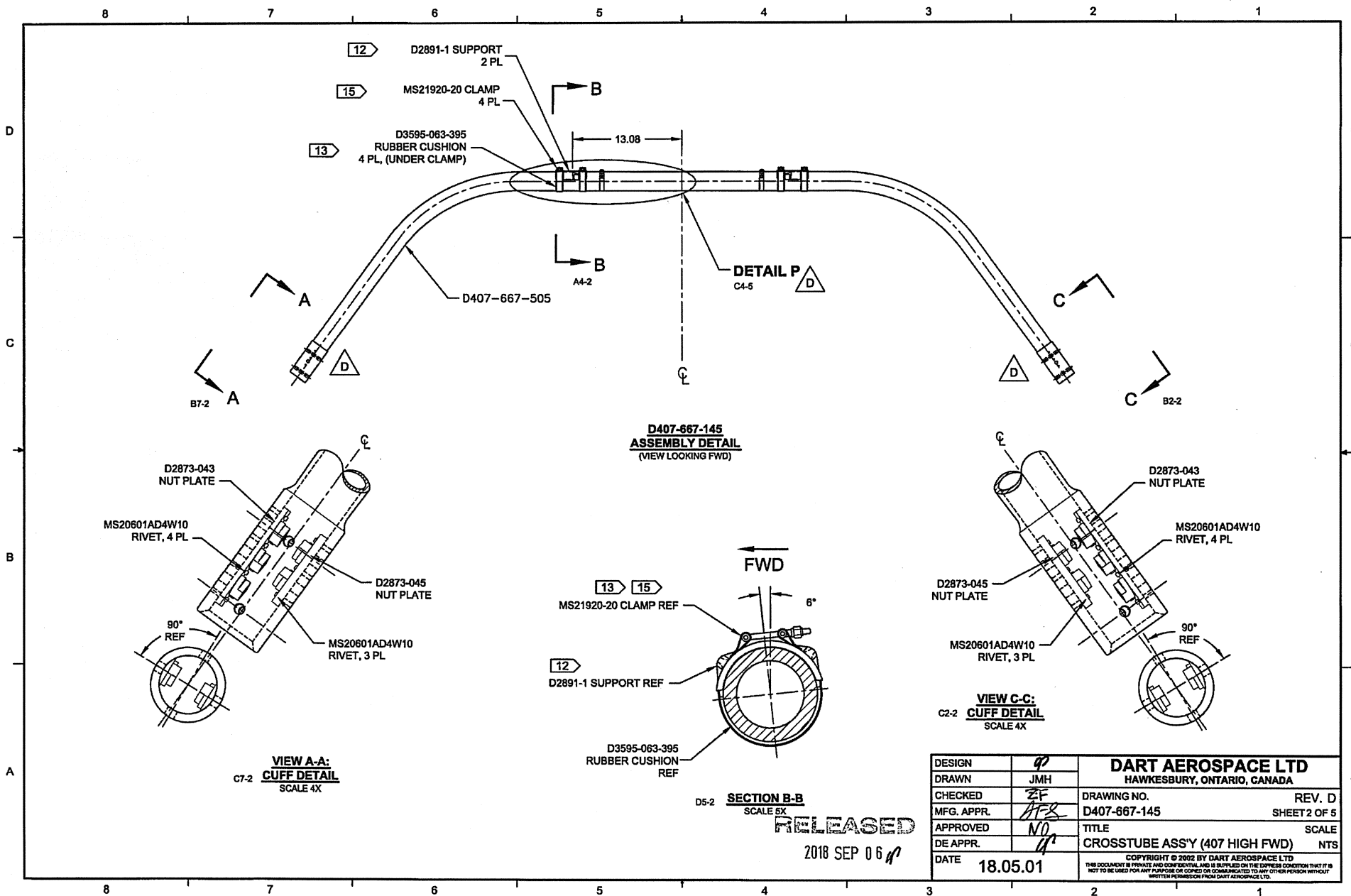
- MATERIAL: MANUFACTURED FROM D6010-115
FINISHED LENGTH = 113.20±0.020
PAINT INSIDE AND OUTSIDE PER DART QSI 005 4.2
- FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- UNITS: INCHES UNLESS OTHERWISE NOTED.
- BREAK SHARP EDGES: 0.0005 TO 0.010 MAX.
- IDENTIFICATION: SCRIBE DART PART NUMBER "D407-667-145" AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS.
- WEIGHT: 17.8 lbs
- PART IS SYMMETRIC ABOUT CENTERLINE.
- RUN CUTTER OFF PART WHERE INDICATED. BLEND OUT EDGE LONGITUDINALLY.
- TRANSITION SHOULD BE SMOOTH.
- BEND PROGRESSIVELY WITH A MINIMUM OF 6 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSLUBE PER QSI 038.
- TO INSTALL D2891-1 SUPPORT: ABRASE MATING SURFACE OF SUPPORT AND CROSSLUBE WITH 180-GRIT SANDPAPER AND REMOVE RESIDUE WITH MEK (OR EQUIVALENT). APPLY A SEALANT TO MATING SURFACE OF SUPPORT.
- INSTALL MS21920-20 CLAMPS (OR -21) WITH D3595-063-395 RUBBER CUSHIONS TO SECURE THE D2891-1 SUPPORT ON TOP SIDE OF THE CROSSLUBE. ENSURE CLAMP MECHANISMS ARE LOCATED ON CROSSLUBE SUPPORTS.
- EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS ARE SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING. PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER PROSEAL 890 SEALANT HAS CURED FOR 72 HOURS.
- MASK AREA UNDER CLAMP PRIOR TO PAINTING.
- SEAL EDGES WHERE AN742D36 CLAMP MEETS WITH THE CROSSLUBE USING SIKAFLEX-241/-291 OR MIL-S-8802 CLASS B2 OR PROSEAL 890 SEALANT.
- PERFORM RESISTANCE CHECK TO ENSURE MAX RESISTANCE IS 10 MILLIOMHS.

RELEASED
2018 SEP 06
RNL:777

DATE		18.05.01	
DESIGN	JMH	CHECKED	JF
DRAWN	JMH	MFG. APPR.	JF
DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA		DRAWING NO. D407-667-145	
REV. D		SHEET 1 OF 5	
SCALE		TITLE	
CROSSLUBE ASSY (407 HIGH FWD)		DE APPR.	
NTS		18.05.01	

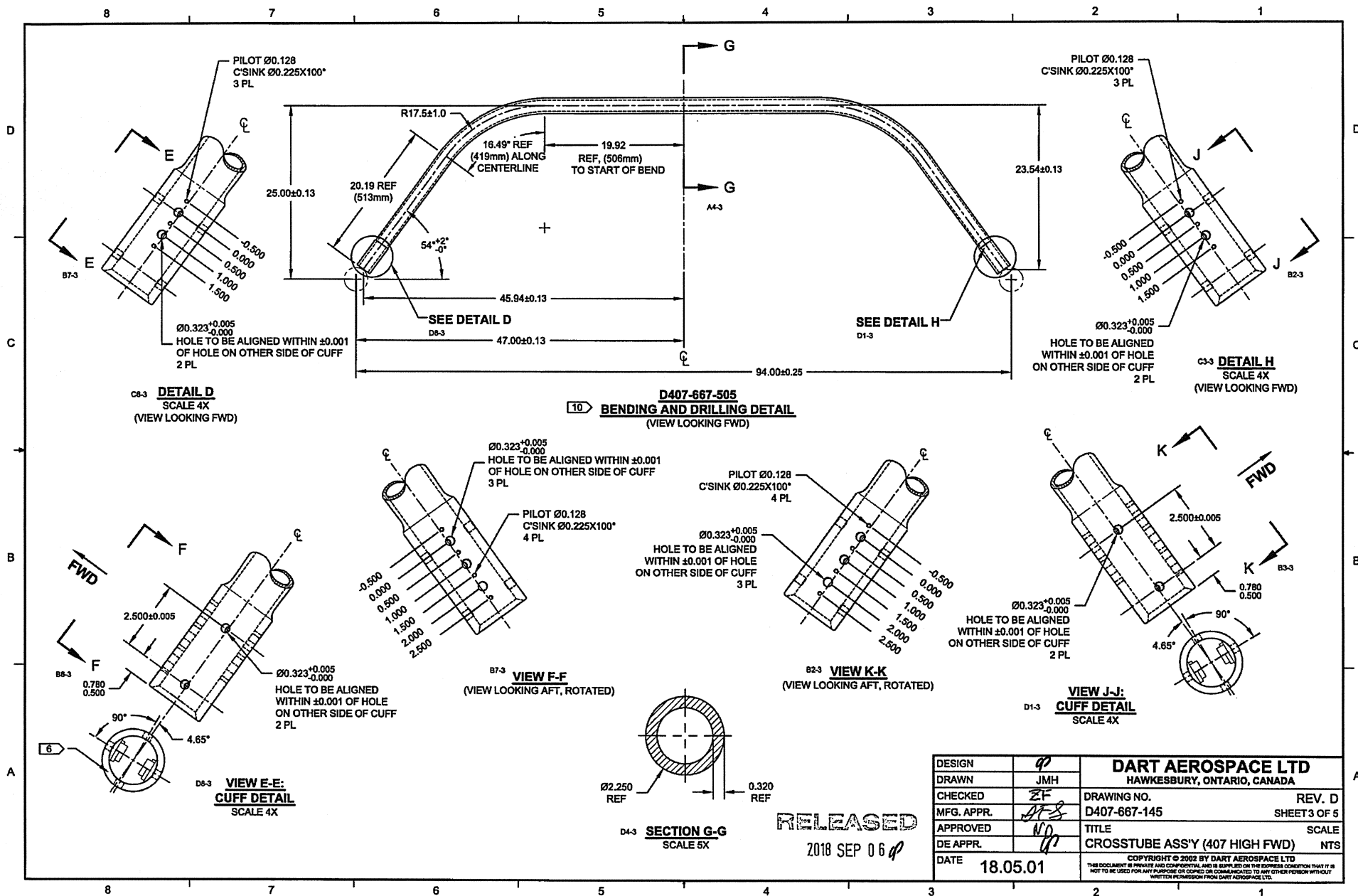
REV.	DESCRIPTION	BY	DATE
A	NEW ISSUE	CP	02.05.08
B	ADD HOLES AND NUT PLATES FOR COMPATIBILITY WITH BHTAA SKUDTUBES	PH	05.07.26
C	REVERSE GENERAL NOTES/PART LIST (ZN D7-1) REORGANIZED VIEWS AND REFORMATTED DRAWING TO CURRENT STANDARDS. D3595-063-395 WAS D2856-100-694 (ZN D6-2 & A5-2). REMOVED REF. 7 ADD TOLERANCES (ZN C6-3, C4-3, D2-3). RELOCATED FLAG #8 (ZN A6-3) PER NCR 210. MOVED TURNING DETAIL & UPDATED TOLERANCE TO SHEET 4.	RF	08.11.06
D	REVERSE SHEET 2 ASSEMBLY DETAIL HOLE PATTERN PER CAR18-221. UPDATE PARTS LIST AND GENERAL NOTES 12 & 15 TO INCORPORATE DEO C-1. ADD ITEMS 10-14 TO PARTS LIST. ADD GENERAL NOTES 16-18 AND ADD SHEET 5 TO INCORPORATE DEO C-2.	JMH	18.05.01

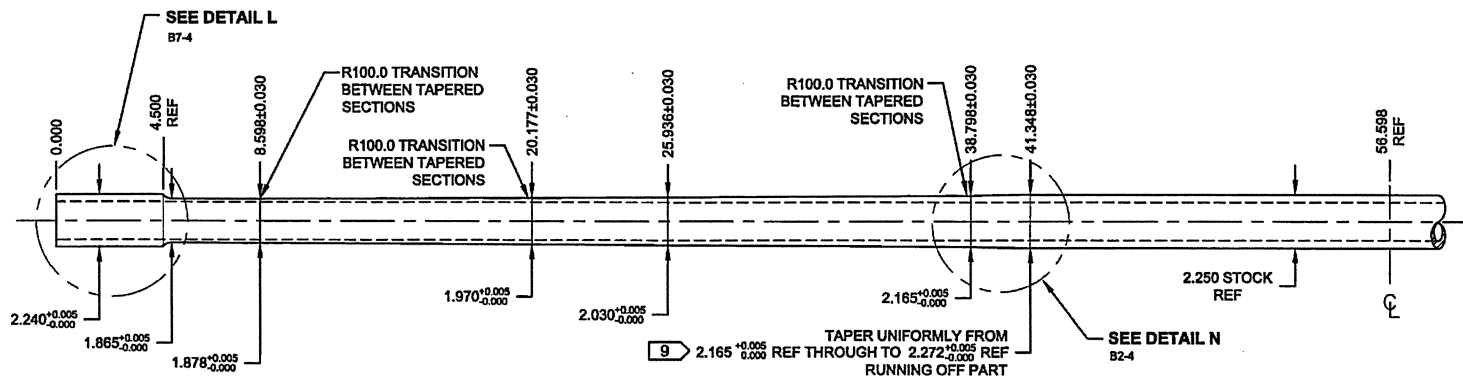
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WITHOUT NOTICE
WORK ORDER
NO. 192346 MS
19-03-21



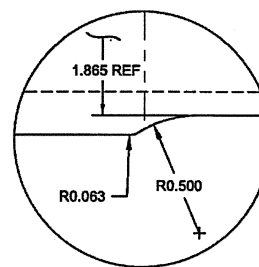
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DRAWN	JMH	HAWKESBURY, ONTARIO, CANADA	
CHECKED	ZF	DRAWING NO.	REV. D
MFG. APPR.	AFR	D407-667-145	SHEET 2 OF 5
APPROVED	ND	TITLE	SCALE
DE APPR.	97	CROSSTUBE ASS'Y (407 HIGH FWD)	NTS
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2018 SEP 06

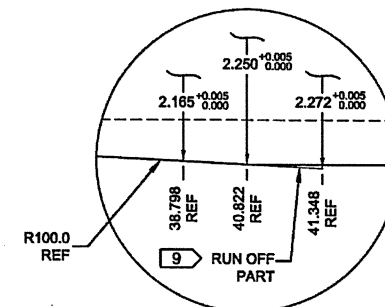




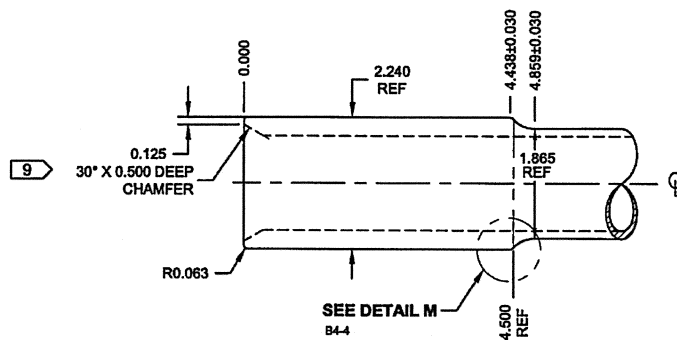
TURNING DETAIL



DETAIL M:
CUFF TRANSITION
B8-4 NOT TO SCALE



DETAIL N:
TAPER RUN-OFF
C3-4 NOT TO SCALE

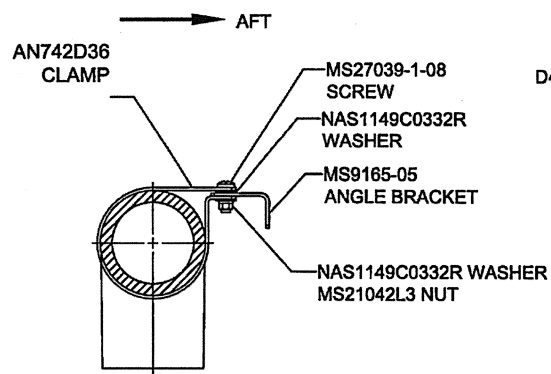


DETAIL L:
CROSSTUBE CUFF
D7-4 NOT TO SCALE

RELEASED

2018 SEP 06 4

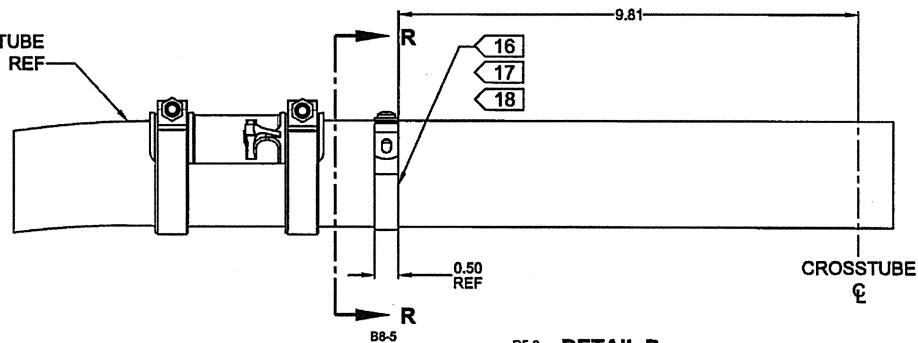
DESIGN	9	DART AEROSPACE LTD	REV. D
DRAWN	JMH	HAWKESBURY, ONTARIO, CANADA	
CHECKED	ZF	DRAWING NO.	
MFG. APPR.	AFS	D407-867-145	SHEET 4 OF 5
APPROVED	NO	TITLE	SCALE
DE APPR.	9	CROSSTUBE ASS'Y (407 HIGH FWD)	NTS
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C4-5 **SECTION R-R**



D407-667-505 CROSSTUBE
REF



D5-2 **DETAIL P**
BONDING STRAP INSTALLATION 2 PL



RELEASED
2018 SEP 06

DESIGN	4P	DART AEROSPACE LTD	
DRAWN	JMH	HAWKESBURY, ONTARIO, CANADA	
CHECKED	ZF	DRAWING NO.	REV. D
MFG. APPR.	AFK	D407-667-145	SHEET 5 OF 5
APPROVED	W.D.	TITLE	SCALE
DE APPR.	4P	CROSSTUBE ASSY (407 HIGH FWD)	NTS
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Entered: _____ Date: _____



WORK ORDER NON-CONFORMANCE / ROUTE UPDATE

NCR No. _____

Route update only ☐

Job: _____ Part No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐	DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Eng. (Non-AW) ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Engineering ☐ Water Jet ☐ Supplier ☐ Quality ☐			
Date :	Sequence #:	QTY Affected :		MRB (QSI042)	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor	
				QC / QA Coordinator	
Root Cause Operator ☐ Manufacturing Process ☐ Equip/Tooling ☐ Handling/Presservation ☐ Material ☐ Product Improvement ☐ Process Improvement ☐ Human Factors ☐		FAULT CATEGORY ☐ Pressure/Forced ☐ Bending ☐ Crushing ☐ Cracks ☐ Crimp/Kink/Ripple/Wave/Twist ☐ Marks/Chatter ☐ Mislabeled ☐ Contamination ☐ Misaligned/off center ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Incomplete/Unclear Instructions ☐ Drill Holes ☐ Fit/Function ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain Direction ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set/Set-up ☐ Positioned Wrong ☐ Outside Tolerance ☐ Drawing ☐ Finish ☐ Part Lost/Missing ☐ Misread			
Other/Details:					